

WHAT IS CLAIMED IS:

1. A plating apparatus comprising:

a plating vessel for holding a plating bath containing at least metal ions;

a conveying device for conveying a long conductive substrate and immersing the long conductive substrate in the plating bath;

a facing electrode disposed in the plating bath so as to face one surface of the conductive substrate;

voltage application means for performing plating on the one surface of the conductive substrate by applying a voltage between the conductive substrate and said facing electrode; and

film-deposition suppression means fixedly disposed in said plating vessel so that at least a portion of said film-deposition suppression means is close to shorter-direction edges of the conductive substrate, at least the portion of said film-deposition suppression means close to the shorter-direction edges of the conductive substrate being conductive,

wherein by holding the conductive portion of said film-deposition suppression means and the conductive substrate at substantially the same potential, film deposition on the other surface of the conductive substrate is suppressed.

2. A plating apparatus according to Claim 1, wherein by conveying the conductive substrate so that a surface of the conductive substrate opposite to the one surface contacts the conductive portion of said film-deposition suppression means, said conveying device maintains the conductive

substrate and the conductive portion at substantially the same potential.

3. A plating apparatus according to Claim 1, wherein said film-deposition suppression means comprises magnets, and wherein the conductive substrate is conveyed by said conveying device in a state of contacting said film-deposition suppression means by being attracted by said magnets.

4. A plating apparatus according to Claim 1, wherein said film-deposition suppression means comprises foot members for supporting at least the conductive portion.

5. A plating apparatus according to Claim 1, wherein said film-deposition suppression means further comprises first members disposed so as to be close to a shorter-direction edge of the conductive substrate, and wherein a plurality of said first members are fixedly disposed along a longitudinal direction of the conductive substrate in a state of being separated from each other.

6. A plating apparatus according to Claim 5, wherein said film-deposition suppression means comprises foot members for supporting said first members.

7. A plating apparatus according to Claim 5, further comprising a second member disposed so as to block a gap between adjacent ones of said first members.

8. A plating apparatus according to Claim 5, wherein at least a portion of each of said first members close to the shorter-direction edge of the conductive substrate is conductive.

9. A plating apparatus according to Claim 7, wherein a portion of said second member close to the shorter-direction edge of the conductive substrate is conductive.

10. A plating apparatus according to Claim 1, wherein said film-deposition suppression means is extended outside of the shorter-direction edge of the conductive substrate.

11. A plating apparatus comprising:

a plating vessel for holding a plating bath containing at least metal ions;

a conveying device for conveying a long conductive substrate and immersing the long conductive substrate in the plating bath;

a facing electrode disposed in the plating bath so as to face one surface of the conductive substrate;

voltage application means for performing plating on the one surface of the conductive substrate by applying a voltage between the conductive substrate and said facing electrode; and

a member fixedly disposed in said plating vessel so that at least a portion of said member contacts a surface of the conductive substrate opposite to the one surface, at least the portion being conductive.

12. A plating apparatus according to Claim 11, wherein said member comprises magnets for maintaining contact with the conductive substrate.

13. A plating apparatus according to Claim 11, wherein said member comprises a plurality of first members and a plurality of second members in a longitudinal direction of the conductive substrate.

14. A plating apparatus according to Claim 13, wherein a plurality of said first members are disposed with a gap between adjacent ones of said members and are fixed by supporting members, and wherein each of said second members is disposed over upper surfaces two adjacent ones of said first members.

15. A plating apparatus according to Claim 14, wherein a surface of said first member facing a surface of the conductive substrate is substantially flat, wherein said second member comprises a projection for filling the gap, and wherein a surface of said projection facing the conductive substrate is a surface of said first members facing the conductive member are disposed on substantially the same plane.

16. A plating apparatus according to Claim 11, wherein said member is extended outside of the shorter direction edge of the conductive substrate.

17. A plating method of conveying a long conductive substrate while causing it to pass through a plating bath held in a plating vessel, and

performing electroplating on one surface of the conductive substrate in the plating bath, said method comprising the step of:

suppressing film deposition on a surface of the conductive substrate opposite to the one surface by fixedly disposing film-deposition suppression means set to substantially the same potential as the conductive substrate in the plating vessel so as to be close to shorter-direction edges of the conductive substrate on the other surface.

18. A plating method according to Claim 17, wherein by conveying the film-deposition suppression means while contacting it to the conductive substrate, the film-deposition suppression means and the conductive substrate are maintained at a substantially the same potential.

19. A plating method according to Claim 18, wherein the conductive substrate is conveyed while causing the film-deposition suppression means to contact the conductive substrate by a magnetic force.